{In Archive} Fw: EARTHQUAKES: Drilling waste disposal risks another damaging Okla. quake, scientist warns

Philip Dellinger to: William Honker, Wren Stenger, Stacey Dwyer 04/19/2012 10:35 AM
Cc: Angela Restivo, Arnold Bierschenk, Brian Graves, Jana Harvill, Jose Torres, Ken-E Johnson, Lisa Pham, Michael Bechdol, Michael Overbay, Mike Frazier, Nancy Dorsey, Omar Martinez, Philip

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FYI. Horton is a key member of our expert review panel. He was very involved in the Arkansas situation, and we have met with him.

----- Forwarded by Philip Dellinger/R6/USEPA/US on 04/19/2012 09:11 AM -----

From: Rob Lawrence/R6/USEPA/US
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Date: 04/19/2012 08:16 AM
Subject: Fw: EARTHQUAKES: Drilling waste disposal risks another damaging Okla. quake, scientist warns

Expert panel member
Ruben Casso

----- Original Message -----
From: Ruben Casso
Sent: 04/19/2012 08:15 AM CDT
To: Rob Lawrence; Philip Dellinger; Michael Overbay
Subject: EARTHQUAKES: Drilling waste disposal risks another damaging Okla. quake, scientist warns

EARTHQUAKES: Drilling waste disposal risks another damaging Okla. quake, scientist warns

Mike Soraghan, E&E reporter

Published: Thursday, April 19, 2012

SAN DIEGO -- Oklahoma officials are risking another large earthquake like the one last November if they continue to allow oil and gas companies to inject waste near the same fault, said a seismologist who has studied the magnitude-5.6 earthquake.

"Continued injection close to this active fault zone risks triggering another damaging earthquake," University of Memphis scientist Stephen Horton stated in findings posted yesterday at the annual meeting of the Seismological Society of America here.

Last year, Horton's finding that continued injection in several Arkansas wells could cause a damaging earthquake spurred state oil and gas officials to permanently ban injection in part of the state.

"It's more or less the same," said Horton said in an interview. "It's a risk to continue injecting near a seismic zone."

But he stressed he wasn't recommending to state officials that they block injection in the area.

"That's not my decision to make," Horton said.

Oklahoma State Geologist G. Randy Keller said more data are needed before any such decision could be made.

"I don't necessarily agree, but I don't necessarily disagree," said Keller, who is also attending the annual gathering of the movers and shakers in the seismological community.

He said officials in Oklahoma are still sorting through a huge amount of information from last year's quake.

A spokesman for the Oklahoma Corporation Commission, which regulates oil and gas production and injection in the state, referred questions to Keller.

Keller and Colorado state geologist Vince Matthews have criticized as premature the findings of Horton and U.S. Geological Survey scientists that a rise in earthquakes in Oklahoma and Colorado may be linked to injection of oil and gas wastewater (*EnergyWire* , April 16).

Aware of the skepticism, Horton has stuck to his findings that the quake that knocked down chimneys and headstones 44 miles east of Oklahoma City was "possibly triggered" by injection wells near the fault that ruptured.

In addition, geophysicist Bill Ellsworth of USGS said at the conference yesterday that a magnitude-5.3 earthquake in southern Colorado last August was "induced or at least influenced" by nearby injection wells.

"There is something going on that it looks like it's worth understanding," Ellsworth said.

But he stressed there is no indication that any of the man-made earthquakes that he and his USGS team are investigating have any link to hydraulic fracturing, a specific part of drilling and completing an oil or gas well. Instead, he stressed, they are exploring what they see as a probable link between the quakes and the industry's common practice of getting rid of wastewater by

injecting it deep underground.

There have been at least two reports of hydraulic fracturing itself possibly causing two very small, barely detectable earthquakes.

"We don't see that there's any connection between fracturing and earthquakes of any concern to society," Ellsworth said.

'Compelling link' between fault line, wells

The November quake in Oklahoma ruptured part of a 3-mile-long fault. If it were to rupture as a "single event," the resulting quake could be larger than last year's.

Oklahoma has seen a sharp rise in the number of earthquakes in the last few years. Horton found that 63 percent of earthquakes have occurred within 10 kilometers (about 6 miles) of a deep injection well, compared to a 31 percent chance of a random, natural earthquake happening within 10 kilometers of a deep injection well.

But he has been careful to say that there is no definitive proof that injection caused the quakes but simply a correlation between the location of the quake centers and the wells.

He noted that some of the nearby injection wells had been in operation for 10 years. Keller said the amount of fluid being injected has been on the decline for the last five years.

"It's very difficult to prove that earthquakes are triggered," he said.

Still, another seismologist who has closely studied the November quake, said she saw a "compelling link" as well.

Katie Keranen, a University of Oklahoma seismologist who started putting seismic instruments in place after a magnitude-4.7 quake that shook the area days before the larger event, told a packed room at the conference that there are two very deep injection wells near the ruptured fault.

"There's a compelling link between the zone of injection and the seismicity," Keranen said.

But she made a similar point as Horton and Keller that data on the amount of fluid injected would not show much reason for it to suddenly cause seismic activity. And the state has plenty of natural earthquakes, too, she noted.

"So that complicates things," she said.